



Subject card

Subject name and code	Equipment and machinery in the polymer industry, PG_00039714						
Field of study	Materials Engineering, Materials Engineering, Materials Engineering						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2023/2024		
Education level	first-cycle studies	Subject group			Optional subject group Subject group related to scientific research in the field of study		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	3	Language of instruction			Polish		
Semester of study	5	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Polymers Technology -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Janusz Datta				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	15.0	45
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	45		5.0		50.0	100
Subject objectives	Teaching students the main elements of construction and the operation and proper use of selected machines and apparatus of the plastics industry						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_W06		knows the basic methods of activities that are applied during solving engineering problems				
	K6_W04		knows the basics of various work scientific apparatus used in materials engineering				
	K6_U06		The student is able to analyze the obtained results; interpret them and present conclusions				
	K6_U09		is able to prepare an oral presentation on a given topic in Polish and in English, using the basic theoretical concepts				
	K6_K01		is aware of its own limitations in owned knowledge; is able to address your doubts to specialists; understand the need continuous improvement of competences				
Subject contents	Apparatus for the production of polymeric materials - containers, chemical reactors. Apparatus for the pre-treatment of polymer materials - stationary, mobile, stand-alone and multi-station dryers with a dry air aggregate; mills; mixers; granulators. Cutting machines. Injection molding machines - standard injection molding machines, injection molds. Extruders, extrusion heads, calibrators, cooling baths, granulators. Modern twin screw extruders, cylindrical snails, segmented screws. Apparatus and machines for producing rubber - Mixers, rolling mills, calenders, hydraulic presses, injection molding machines for rubber products, Dosing and mixing aggregates in RIM and RRIM technology, gear and membrane pumps, mixing heads, two-part and multi-section systems. Recycling machines						
Prerequisites and co-requisites	Knowledge of polymer synthesis methods; knowledge of the criteria for assessing the quality of plastics and basic testing methods for plastics						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	written	50.0%	60.0%
	presentation	90.0%	40.0%
Recommended reading	Basic literature	1) Sikora R., Przetwórstwo Tworzyw polimerowych. Podstawy logiczne, formalne i terminologiczne. Wydawnictwo Politechniki Lubelskiej, Lublin 2008. 2) Poradnik konstruktora maszyn, Verlag Dashofer, Warszawa 2008 3) White R., De S.K., Poradnik technologia gumy, przekład i wydanie IPGum "Stomil" Piastów 2003	
	Supplementary literature	Katalog maszyn i urządzeń do utylizacji odpadów, KBN, Katowice 1996	
	eResources addresses	Adresy na platformie eNauczenie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		